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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Center for Health Services Research
and Health Care Technology Assessment

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Journal of Studies on Alcohol, Vol. 50, No. 4, 1989

Alcoholism Treatment in General Hospitals*

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ABSTRACT. This article examines recent developments in the role of general hospitals in providing treatment for alcoholism. It employs data on 5,000 U.S. short-term general hospitals and on all patients discharged from a subsample of 400 of these hospitals in the years 1980 through 1985. The article describes the growth in alcoholism treatment resources in short-term hospitals (1980–85) and examines linked hospital and patient data for the 400 hospitals in the subsample to describe patient diagnoses and resource use (1980 and 1985). Patients are classified by the stage of their alcohol problem, and hospital use is examined for patients in different stages. (*J. Stud. Alcohol* **50**: 301-305, 1989)

THIS ARTICLE EXAMINES recent developments in the role of general hospitals in providing treatment for alcoholism. Such hospitals are the most frequently used site for the inpatient treatment of alcoholism in this country. Slightly more than 36% of admissions to inpatient alcoholism treatment facilities are to alcohol units in short-term general hospitals (Reed and Sanchez, 1986). In addition, many patients with alcohol problems receive care in general hospitals that do not have specialized alcoholism treatment units (Wallen, 1986).

Method

The data used for this study were assembled by the Hospital Studies Program at the National Center for Health Services Research and Health Care Technology Assessment (NCHSR). They are part of a large database that includes information on all short-term general, nonfederal, U.S. hospitals (approximately 5,000 hospitals) and on all patients discharged from a national sample of approximately 400 of these hospitals in the years 1980 through 1985. Information on the hospitals was obtained from American Hospital Association (AHA) annual surveys of 1980-85. The patient data were obtained from the abstracting services to which the sample hospitals subscribed. The patient data are confidential and any linkages made between patient and hospital data for analytic purposes are made in such a way that the anonymity of both hospitals and patients is safeguarded.

This article begins by describing the growth in alcoholism treatment resources in community hospitals from 1980 to 1985, presenting figures based on the over 5,000 short-term general hospitals surveyed by the AHA in those years. It then examines linked hospital and patient data for 1980 and 1985 for the sample of roughly 400 hospitals for which patient discharge data were obtained by the Hospital Studies Program. Approximately 30,000 patients were admitted to the sample hospitals for alcohol problems in each of the 2 years. Patient diagnoses and resource use are described for both years. Finally, patients are classified by the stage of their alcohol problem, and hospital use is examined for patients in different stages.

Results

Alcoholism facilities in the 5,000 AHA hospitals

The AHA annual survey asks whether hospitals have beds designated for alcohol/chemical dependency treatment. As Table 1 shows, the average number of alcohol/chemical dependency beds in hospitals responding to the AHA survey was 2.0 in 1980 and 3.7 in 1985, almost a 100% increase during that 5-year period. Alcohol/chemical dependency beds as a proportion of total hospital beds also increased almost 100% over that time period, from 1.0% to 1.9%.

Also during this period, however, occupancy rates in alcohol/chemical dependency beds decreased, from approximately 70% in 1980 to about 52% in 1985, indicating that not all of the added beds were being filled. This decline in occupancy rates is understand-

Received: December 30, 1987. Revision: June 1, 1988.

* The views expressed herein are those of the authors and do not necessarily reflect those of the NCHSR, NIAAA or DHHS.

† At the time this article was written, Dr. Wallen was with the National Center for Health Services Research and Health Care Technology Assessment (NCHSR).

TABLE 1. Alcohol/chemical dependency beds and bed use in U.S. short-term general hospitals surveyed by the American Hospital Association, 1980–85

	1980	1985
Mean number of alcohol/chemical dependency beds	2.0	3.7
Average percent of total beds that are designated for alcohol/chemical dependency	1.0	1.9
Average occupancy rate of alcohol/chemical dependency beds (%)	70.4	52.2
Number of hospitals	5,512	5,456

Source: National Center for Health Services Research and Health Care Technology Assessment, Hospital Studies Program.

able, considering that the alcohol/chemical dependency bed supply almost doubled during that period of time and that hospital occupancy rates were declining overall (Farley, 1988). In fact, the "added" alcohol/chemical dependency beds were usually not really new hospital beds. By and large they were medical/surgical beds or other beds that were not being used sufficiently and that were converted to alcohol/chemical dependency use. Unfortunately, the AHA survey data do not report what proportion of the alcohol/chemical dependency bed occupancy rates reflected use for alcohol problems and what proportion reflected use for drug problems. The patient level data reported in the next section give better information about hospital use for alcohol problems. The patient level data, however, are limited by the fact that they do not indicate whether a patient was in an alcohol/chemical dependency bed or in a general hospital bed.

Patients in the 400 sample hospitals

Table 2 presents data for all patients admitted to the 400 sample hospitals in 1980 or 1985 with a principal diagnosis involving an alcohol problem.[1] The table shows a slight shift in the principal diagnoses given to alcohol patients during 1980-85. The proportion of patients admitted for alcohol abuse (without dependency) increased slightly in relation to the proportion of patients admitted for alcohol dependence, according to the ICD codes used to describe each patient's principal diagnosis. The proportionate increase in the number of patients with less severe disorders could reflect increased availability of alcohol/chemical dependency beds and increased coverage for inpatient alcohol treatment between 1980 and 1985 (Jacob, 1985).[2]

One important change that occurred between 1980 and 1985 was the introduction of Medicare's Prospective Payment System (PPS) as mandated by the Tax Equity and Fiscal Responsibility Act of 1982 (*Federal Register*, 1982). Under PPS, hospitals are reimbursed for care provided to Medicare patients on the basis of each patient's diagnosis-related group (DRG) rather than on the basis of the cost of that patient's care. This reimbursement system was introduced in fiscal 1984.[3]

TABLE 2. Patients admitted to a national sample of U.S. short-term general hospitals with a principal diagnosis involving an alcohol problem, HCUP-2 patient and hospital data, 1980–85[a]

	1980	1985
Principal diagnosis (ICD-9), percent with:		
Alcohol abuse (nondependent)	9.0	11.5*
Alcohol dependence	75.1	73.0*
Alcoholic psychosis	15.9	15.6
DRG, percent in:		
DRG 443. Left AMA	11.1	11.2
DRG 434. Alcohol/drug abuse except dependence	9.5	11.3*
DRG 435. Alcohol/drug dependence —detoxication	79.3	61.2*
DRG 436. Alcohol/drug dependence —rehabilitation	0.0	4.4*
DRG 437. Alcohol/drug dependence detoxication and rehabilitation	0.0	11.8*
Percent Medicare	13.0	12.5
Mean length of stay	10.4	9.6*
Percent in hospital with alcohol/chemical dependency bed(s)	53.1	58.0*
Percent discharged to another facility	3.8	6.0*

[a] These figures are based on 31,697 patients in 393 hospitals for 1980 and 26,897 patients in 388 hospitals for 1985.

* The difference between the mean for 1980 and the mean for 1985 is significant at or beyond the .05 level using a standard two-tailed *t* test.

Source: National Center for Health Services Research and Health Care Technology Assessment, Hospital Studies Program.

The alcohol/drug DRGs introduced in 1984 did not distinguish between those patients receiving rehabilitation services and those patients receiving detoxication without rehabilitation. This omission was a matter of concern to providers of care for patients with alcohol problems because detoxication involves observing and stabilizing the patient during a relatively brief period of withdrawal from alcohol whereas rehabilitation involves the more extensive provision of supportive, educational and therapeutic resources and services. Stays are considerably longer for rehabilitation than for detoxication alone (Mezochow et al., 1987).

During the first year of PPS, the alcohol/drug DRGs were modified by the Health Care Financing Administration (HCFA) to distinguish between detoxication and rehabilitation. Hospitals being reim-

bursed by Medicare for treating alcohol/drug patients were required to report whether these patients received rehabilitation beginning in the spring of 1984, even though the modified alcohol/drug DRGs did not actually go into effect for reimbursement purposes until 1986. This reporting requirement was fortuitous as far as research on alcohol patients in general hospitals is concerned. By 1985 the hospitals we studied were distinguishing between Medicare patients receiving rehabilitation and those receiving detoxication, but they were also making this distinction for many non-Medicare patients. This distinction was not made in discharge abstract data prior to the spring of 1984. In fact, the ICD-9 procedure code used to indicate that patients received rehabilitation for the new alcohol/drug DRGs was one that was rarely, if ever, used for alcohol/drug patients prior to its designation for PPS purposes in 1984.[4]

Table 2 groups patients into DRGs based on the distinction between detoxication and rehabilitation. It shows that, because the code was not yet in general use, no patients were coded as receiving rehabilitation in 1980. In 1985, however, after HCFA had selected the ICD-9 code to represent rehabilitation, slightly more than 16% of the patients in the general hospitals studied were assigned this procedure code.

Resource use by alcohol patients in the 400 sample hospitals

Table 2 shows a decrease in the length of stay of alcohol patients in general hospitals between 1980 and 1985. This is consistent with an overall reduction in length of stay for general hospital patients during this period of time (Farley, 1987).

Table 2 also shows an increase in discharges to other facilities between 1980 and 1985. Other facilities include any inpatient health care facility that is not a general hospital, a skilled nursing care facility, or an intermediate care facility. For example, an "other facility" may be a nursing home, a mental institution or an alcohol rehabilitation facility. The exact type of facility is not specified in these data.

Illness stage and resource use

Table 3 uses 1985 data to categorize patients by illness stage. Disease staging is a diagnosis classification scheme that uses the ICD-9 codes in each patient's discharge abstract to group patients by disease category and to assign a score for illness stage within each disease category.[5] Disease staging differs from DRGs in that disease staging takes into account only the patient's illness, not differences in treatment. It defines stages in terms of the extent or progression of the patient's underlying condition from illness with no complications (Stage 1) through more extensive involvement of various organ systems (Stages 2 and 3), to death (Stage 4), using diagnoses received by the patient during his or her hospital stay. Figure 1 shows the stages for alcoholism.

TABLE 3. Hospital use by alcohol patients in a national sample of U.S. short-term general hospitals by stage of illness, HCUP-2 patient data, 1985

	Number of patients	Percent of patients	Mean length of stay[a,b]	Percent discharged to other facility[a,b]	Percent receiving rehabilitation[a,b]
Stage of alcoholism					
1	3,444	12.8	6.2	7.2	0.8
2	8,670	32.3	13.3	5.2	27.0
3	14,732	54.8	8.4	6.5	13.4
4	22	–[c]	22.6	0.0	4.5
Stage 3 substages					
3.1	4,152	30.6	7.0	8.0	11.0
3.2	4,981	33.8	8.3	5.8	13.0
3.3	335	2.3	8.4	6.0	7.5
3.4	5,174	35.1	9.7	5.9	16.4
3.5	90	0.1	4.4	10.0	2.2

[a] An analysis of variance for the difference among stages (Stages 1 through 4) in the mean for this variable was carried out and F was significant at the .05 level or beyond.

[b] An analysis of variance for the differences among substages of Stage 3 (3.1 through 3.5) was carried out and F was significant at the .05 level or beyond.

[c] Percent of less than 0.1.

Source: National Center for Health Services Research and Health Care Technology Assessment, Hospital Studies Program.

Disease staging is useful for research purposes because it can produce a rough index of severity for large numbers of hospital patients across a range of illnesses using only the ICD-9 information from the patient discharge abstracts. Where alcoholism is concerned, however, illness staging produces only a weak measure of severity because it is based on the patient's condition while in the hospital but does not include the kinds of psychosocial information required for an accurate clinical assessment of the patient's status.

Another limitation of this measure is that the algorithm used to stage alcohol patients uses only the ICD-9 codes that were entered on the patients' records and coded by the discharge abstracting service. There are a number of potential sources of error in this process (Short, 1986). Most importantly, it is possible that not all of the ICD codes applicable to the patient's condition were entered on the patient's record. This could have occurred because of the

FIGURE 1. Alcoholism stages and their definitions (Gonella, 1985)

Stage	Description
1.0	Alcohol abuse: • Continuous or episodic use of alcohol for at least one month with social complications of alcohol use. • Either psychological dependence or pathological pattern of use.
2.1	Alcohol dependence characterized by tolerance or withdrawal: • Disturbances of attention as manifested by impairment in ability to sustain either attention to environment, goal-directed thinking or goal-directed behavior. • Disordered memory and orientation. • At least two of the following: reduced wakefulness or insomnia, perceptual disturbance or increased or decreased psychomotor activity.
2.2	Malnutrition.
3.1	Alcohol intoxication characterized by: • Evidence of the recent ingestion of alcohol. • At least one of the following neurological signs: slurred speech, lack of coordination, unsteady gait or impairment in attention or memory. • Maladaptive behavioral effects.
3.2	Alcohol withdrawal: • Heavy drinking for several days or longer. • Coarse tremor of hands, tongue and eyelids within several hours of cessation or reduction of alcohol ingestion. • Development of at least one of the following because of recent cessation (as noted above): nausea and vomiting, malaise or weakness, autonomic hyperactivity, anxiety, depressed mood or irritability, insomnia, grand mal seizures or orthostatic hypotension.
3.3	Alcohol withdrawal delirium.
3.4	Gastrointestinal disease, neurological disease, psychotic reaction, pellagra or cardiovascular disease.
3.5	Coma or shock.
4.0	Death.

potential stigma involved in recording diagnoses related to alcoholism, because the physician was not aware of all aspects of the patient's condition, or simply because the physician did not consider the additional diagnoses to be of major importance. When applicable alcohol-related diagnoses are omitted from the patient's record, the illness stage of alcoholic patients may be underestimated.

Nonetheless, Table 3, which presents patient data for 1985, shows that slightly more than half of the patients admitted for alcohol problems were classified as being in Stage 3. Stage 3 spans a wide range of severity. Separate figures showing the proportion of patients in each substage of Stage 3 are also presented in Table 3. The figures show that Substages 3.3 (alcohol delirium without other organic complications) and 3.5 (coma or shock) were relatively rare. Patients were distributed in roughly equal proportions across the other 3 substages of Stage 3: 30.6% in 3.1 (alcoholic intoxication); 33.8% in 3.2 (alcohol withdrawal) and 35.1% in Substage 3.4 (alcoholism with related comorbidities). Patients in the first two stages accounted for about 45% of the alcohol patients. Less than 1% of the patients were assigned to Stage 4 (death).

Table 3 also shows some of the resources used by patients in each stage. It shows that patients who ultimately died in the hospital had the longest hospital stays (almost 23 days) and patients in Stage 1 had the shortest stays (slightly more than 6 days). Interestingly, patients in Stage 2 tended to have considerably longer stays (13.3 days) than patients in Stage 3 (8.4) days. This may partly reflect the fact that patients in Stage 2 were considerably more likely to receive rehabilitation (27.0%) than patients in Stage 3 (13.0%).

An inspection of Stage 3 substages shows variation among the substages in resource use. Patients in Substage 3.4 were more likely than other Stage 3 patients to receive rehabilitation. They also had longer stays than other Stage 3 patients. Patients in Substage 3.4 are ones who have had severe withdrawal reactions and who also have some alcohol-related medical or psychiatric complications such as liver damage, gastrointestinal disorders or psychosis. It cannot be determined from these data why patients in this substage were more likely to receive rehabilitation than patients in other substages of Stage 3. Perhaps they were more willing to accept treatment or experienced more pressure to accept treatment because of their alcohol-related medical problems.

Discussion

The data on alcohol patients in general hospitals presented in this article show some interesting trends. From 1980 to 1985, alcohol/chemical dependency beds in such hospitals doubled, both in absolute numbers and as a proportion of total hospital beds. Occupancy rates for these beds suggest that the demand did not quite keep pace with the increased supply. Still, many of these new beds were being filled even though occupancy rates for general medical/surgical beds were still declining.

Most of these general hospital patients treated for alcohol problems in 1985 did not, to the extent that can be determined from their discharge abstracts, receive rehabilitation. Information on rehabilitation was available only because of the recent HCFA designation of an ICD-9 procedure code to represent alcohol/drug rehabilitation for Medicare purposes, however. This code was used for many, but may not have been entered for all, non-Medicare patients receiving rehabilitation.

Patients in a relatively early stage of alcoholism (Stage 2), according to the measure employed here,

were likely to receive the most resource-intensive treatment. These patients were physically dependent on alcohol and showed some negative physiological and behavioral effects of alcohol dependence, but did not suffer severe withdrawal reactions or have major alcohol-related medical problems. Such patients were the most likely to receive rehabilitation while in the hospital and had the longest hospital stays.

Nearly half (45%) of the alcohol patients studied were in the first two stages of alcoholism. Although they may have had some degree of malnutrition, and may have experienced some agitation and nervousness, depression, and perceptual or cognitive disturbances upon withdrawal, they did not have severe alcohol-related medical complications, nor did they experience seizures or delirium.

A more detailed reporting of rehabilitation services received by alcohol patients in short-term general hospitals is likely to result from the implementation of the new alcohol/drug DRGs. Our research and other research on the effects of PPS (Cohen et al., 1987) suggest that this will be true for both Medicare and non-Medicare patients. Future research using patient data to study alcohol treatment for Medicare and non-Medicare patients will benefit from this increased detail.

Notes

1. The principal diagnosis is the diagnosis that, at the time the patient was discharged, was considered to have been the reason for admission. Alcohol diagnoses include ICD-9 codes 305-305.9 (alcohol abuse without dependence), 303-303.9 (alcohol dependence) and 291 (alcoholic psychoses).
2. Five hospitals studied in 1980 did not provide patient data for 1985 that could be used in this study. The change in the diagnostic mix of alcohol patients could also reflect this change in the hospital sample. The confidentiality restrictions on our data prevent the identification of which hospitals were lost from the 1985 sample, but if any of the dropped hospitals were ones with large alcohol/chemical dependency units, a decrease in the number of severe alcoholism cases as well as a decrease in the number of alcohol patients in the sample would be expected to take place.
3. Because of concern that the DRGs for alcohol and drug problems might not accurately reflect the cost of alcoholism treatment in specialized alcohol/chemical dependency units in general hospitals, such units were permitted to request an exemption form PPS. Units granted this exemption could continue to bill Medicaid on the basis of the care provided rather than on the basis of the patients' DRGs. Our data show that only about 5% of the alcohol/chemical dependency units in general hospitals actually requested and received such an exemption in 1984. By 1985, when units had had more time to apply, the number was undoubtedly greater. Beginning in 1987, however, the regulations were changed. Alcohol/chemical dependency units can no longer receive exemptions from PPS.
4. The ICD-9 code is V57.89—"other specified rehabilitation procedure" (excluding orthotic training).
5. The staging algorithm was developed at SysteMetrics, Inc., under the clinical direction of Dr. Joseph Gonella (Gonella, 1985) with the financial support of NCHSR.

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*U.S. Government Printing Office: 1989-241-276/00060

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